

### ABSTRACT OF THE DISCLOSURE

Systems, methods, and products are described for synthesizing probe arrays of polymers. A mask is used that includes reticle areas, each of which includes a number of reticles associated with a same synthesis area on a substrate. A method includes (a) aligning the mask with respect to the substrate so that a first reticle of a first reticle area is aligned with a first synthesis area and so that a second reticle of the first reticle area is aligned with a first discard area on the substrate; (b) coupling monomers on the first synthesis area at locations determined by the first reticle; (c) re-aligning the mask with respect to the substrate so that the second reticle is aligned with the first synthesis area; and (d) coupling monomers on the first synthesis area at locations determined by the second reticle. The monomers may be, for example, nucleotides, amino acids or saccharides.